

Appendix 1- Species of Greatest Conservation Need Michigan's Wildlife Action Plan 2015- 2025



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Habitat – MNFI, Yu Man Lee

Cerulean Warbler – Roger Eriksson

Category	Common Name	Scientific Name	Inclusion Rationale
Amphibians	Blanchard's cricket frog	<i>Acris crepitans blanchardi</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). There are current records across the species historical range, the southern third of the Lower Peninsula, but abundance is unknown and only historical records exist for several central counties. This species should stay listed as state threatened due to limited area of occupancy and declines. (TAC 2014)
Amphibians	Boreal chorus frog	<i>Pseudacris triseriata maculata</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). The historical range of this species was restricted to Isle Royale; although the species appears to remain intact, abundance is unknown.
Amphibians	Marbled Salamander	<i>Ambystoma opacum</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to be delisted from Endangered to Special Concern (2014). The historical range is limited to a small portion of the southwest Lower Peninsula and represents the northernmost extent of the species' range. The current distribution and abundance are not known, and no observations have been reported since the 1980s. It is unknown if this species is still present in Michigan as field research has been extremely limited in the small area of

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Amphibians	Mink Frog	<i>Rana septentrionalis</i>	<p>known occupancy.</p> <p>The historical and current range of the mink frog extends through the Upper Peninsula, but current records and field reports suggest its abundance is declining. However, most current observations come from volunteer calling surveys, which may miss this late-breeding species; modification of the survey protocol is recommended to ensure detection. This species relies on permanent wetlands for habitat and protection of these critical areas is recommended. Due to reduced area of occupancy, the T&E Technical Advisory Committee recommends that mink frog be a Species of Greatest Conservation Need (2014).</p>
Amphibians	Mudpuppy	<i>Necturus maculosus maculosus</i>	<p>Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species elevated to Special Concern (2014). Historically mudpuppy occurred throughout the state. Although the mudpuppy's abundance is unknown, populations appear to be declining; anecdotal accounts suggest the species has become rare or absent in locations where it was considered common in the 1970s and 1980s. This species is subject to direct persecution, particularly by anglers who either fear its unusual appearance or consider it a threat to game fish and discard the salamander on land or ice to</p>

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			die. Mudpuppy have faced significant mortality over the last 30 years from water quality and pollution, persecution, and lampricide application, and coupled with their longevity and slow age to maturity and expected continued population reduction attention is warranted. (TAC 2014)
Amphibians	Northern Dusky Salamander	<i>Desmognathus fuscus fuscus</i>	The Technical Advisory Committee for the T&E list revision (2014) recommended this species as an SGCN. There is a single extant population in Tuscola County for which there is limited data. More research is needed to confirm that the species is native to Michigan.
Amphibians	Pickerel Frog	<i>Rana palustris</i>	Expert review (2005); Technical Advisory Committee for the T&E revision recommends this species be elevated to Special Concern (2014). Historical range for this species covers both the Upper and Lower Peninsula. Current records show the species still widely distributed across the state, but the observations are very localized. Some populations appear to be declining and the species has not been reported as often as historic records would suggest it should be. (TAC 2014)
Amphibians	Smallmouth salamander	<i>Ambystoma texanum</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Endangered (2014). The known extent of occurrence and area of occupancy of this species is limited and is believed to have experienced a population

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			decline in the state of at least 80% over the last 30 years and this is expected to continue. They are limited to the Lake Erie basin. (TAC 2014)
Amphibians	Southern two-lined salamander	<i>Eurycea cirrigea</i>	The Technical Advisory Committee for the T&E list revision (2014) recommended this species as an SGCN. There is a single extant population in Tuscola County for which there is limited data. More research is needed to confirm that the species is native to Michigan.
Amphibians	Western Lesser Siren	<i>Siren intermedia nettingi</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). The only records of this species, restricted to one site each in Allegan and Van Buren Counties, are over 50 years old. The full state range of this species is unknown, as the species reportedly has only been found in Michigan as a byproduct of piscicide application.
Amphibians	Woodhouse's Toad	<i>Bufo fowleri</i>	Expert review (2005); Technical Advisory Committee for the T&E revision recommends this species be elevated to Special Concern (2014). This species is estimated to have experienced a population reduction of at least 30% over ten years due to loss of critical dune habitat. Anecdotal data also suggests that this species is more vulnerable to pathogens such as Chytrid compared to similar species. Overall reduction in total numbers observed based on call surveys may indicate a

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			decline in populations even where habitat is available. (TAC 2014)
Birds	American bittern	<i>Botaurus lentiginosus</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Although the Breeding Bird Survey and Michigan Breeding Bird Atlas II indicate American Bittern has continued to decline in Michigan, the species remains common enough to exceed the thresholds recommended for Threatened status in the state. Continued surveys are needed. (Chartier et al. 2011)
Birds	Bald Eagle	<i>Haliaeetus leucocephalus</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014), encouragingly Michigan's Bald Eagle population has undergone a significant increase since MBBA I.(Chartier et al. 2011)
Birds	Barn owl	<i>Tyto alba</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Endangered (2014). If Barn Owl is not documented as a breeding species within the time period to the next review of the T&E list, it should be changed to Extirpated. (Chartier et al. 2011)
Birds	Black tern	<i>Chlidonias niger</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended that this

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			<p>species be elevated to Threatened from Special Concern (2014). There is a general concern about black tern population declines throughout much of its range. According to the most recent (2007-2009) decadal survey of colonial waterbirds along the Great Lakes shoreline, the number of black tern nest detected declined by 42% compared to the previous survey done during 1997-1999 (Cuthbert and Wires 2013). The total number of nests detected in Michigan dropped by about 32% and the number of nesting colonies declined from 12 in 1997-1999 to 5 during the recent survey (Cuthbert and Wires 2013).</p>
Birds	Black-backed woodpecker	Picoides arcticus	<p>Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). The population estimate for this species is about 2,000. During both atlas periods, many more confirmations were recorded in the UP than the LP. Their range in Michigan seems to be relatively stable. Blackbacked Woodpeckers have always been an uncommon to rare species, inhabiting their rather small niche in the ecology of Michigan's forests and they seem ready to continue to do so. (Chartier et al. 2011; Partners in Flight Science Committee 2013)</p>
Birds	Black-crowned night-heron	Nycticorax nycticorax	<p>Expert review (2005); Technical Advisory Committee for the T&E list revision</p>

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			<p>recommended this species to remain Special Concern (2014). Twelve breeding colonies were documented on the Great Lakes islands or along the shoreline of the NLP and UP during MBBA II. This seems to indicate an increase in northward nesting for this species. There are many newer observations in MBBA II from inland habitats, but only one of these is a confirmed breeding record. There appears to be an increase in the number of townships this species was reported in from 14 to 25 over the last 20 years. (Chartier et al. 2011; Soulliere et al. 2007)</p>
Birds	Caspian tern	<i>Sterna caspia</i>	<p>Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). The Michigan Breeding Bird Atlas II estimated 1,572 pairs. This species appears to have an increasing trend. (Chartier et al. 2011)</p>
Birds	Cerulean warbler	<i>Dendroica cerulean</i>	<p>Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species remain listed as Threatened (2014). Breeding Bird Survey trend data suggest a significant decline in this species between 1966 and 2010, showing a 2.98% decline annually during this period (Buehler et al. 2013, Sauer et al. 2011). There is an estimated population of 5,000 in Michigan. This species appears to be declining at a similar level, 2.95% per year, within its core range in the</p>

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			Appalachian Mountains (Buehler et al. 2013). (Partners in Flight Science Committee 2013)
Birds	Common loon	Gavia immer	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). While common loons seem to be holding their own in Michigan or possibly even slightly increasing, continued threats such as the increasing frequency of type E Avian Botulism outbreaks in the Great Lakes that have killed thousands of common loons over the last 15 years warrant caution with this species. (Chartier et al. 2011)
Birds	Common moorhen	Gallinula chloropus	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain Threatened (2014). The second Michigan Breeding Bird Atlas lends support to the perception that Common Gallinule populations in Michigan have declined since the first effort. Recent surveys conducted for marsh birds in Michigan also indicate that this species is now an uncommon species in the state. Their populations do not appear to have fallen below the thresholds used to assign endangered status in Michigan but the status of the species should continue to be tracked. (Chartier et al. 2011)
Birds	Common Nighthawk	Chordeiles minor	Expert review (WAP 2005). There is an estimated 20,000 common nighthawks in Michigan. Their distribution

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			has contracted over the last 20 years, with many counties statewide reporting dwindling numbers. Trends may be declining. (Chartier et al. 2011; Partners in Flight Science Committee 2013)
Birds	Common tern	<i>Sterna hirundo</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). While Common Tern numbers appear to have been relatively stable in recent years, the overall population remains much lower than in previous decades. Additionally, threats to many of their colonies in Michigan remain high, with many colonies often failing (F. Cuthbert pers. Comm., Norwood 2011).
Birds	Dickcissel	<i>Spiza americana</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Population estimate for this species is 4,000. Their distribution continues to be statewide. It is unclear what the trends for this species are in Michigan; within Region 3 they appear to have a decreasing trend. (Chartier et al. 2011; Partners in Flight Science Committee 2013)
Birds	Eastern Red Knot	<i>Calidris canutus rufa</i>	Expert review (2014); Technical Advisory Committee for the T&E list revision recommended this species be added to the list as Threatened (2014). The rufa subspecies of Red Knot was added to the Federal

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			<p>Endangered Species List in December of 2014. Consequently as this subspecies occurs as a migrant in Michigan it should be added to the state list as Threatened. This subspecies experienced a rapid decline from about 82,000 individuals in the 1980s to about 30,000 in 2010 (Baker et al. 2013).</p>
Birds	Forster's tern	<i>Sterna forsteri</i>	<p>Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). Decadal U.S. Great Lakes Colonial Waterbird Surveys indicate that this species' populations have declined substantially since the last survey occurring during 1997-1999, with an estimated 55% decline in the total number of nests (Cuthbert and Wires 2013). Forster's Tern nests were detected at only 4 locations during the most recent survey compared to 13 sites during the previous survey effort.</p>
Birds	Golden-winged warbler	<i>Vermivora chrysoptera</i>	<p>Expert review (WAP 2005). This species is listed as a species of special concern (TAC 2014). This species was common in southern Lower Michigan and now is actively losing range in the state, moving northward. Based on Partners in Flight population estimates database, Golden-winged Warbler's population estimate in Michigan is about 20,000. Michigan is the core of this species range. The USFWS is considering this species for</p>

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			federal listing. (Partners in Flight Science Committee 2013)
Birds	Grasshopper sparrow	<i>Ammodramus savannarum</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Many decades of population declines at multiple scales, suggest a strong need for continued concern. (Chartier et al. 2011; Partners in Flight Science Committee 2013)
Birds	Henslow's sparrow	<i>Ammodramus henslowii</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Endangered (2014). There is an estimated population of 5,000 in Michigan. The Breeding Bird Survey data indicate an alarming 9.39% annual decline in Henslow's Sparrow in Michigan between 1966 and 2012, though this has slowed somewhat to a 5.65% annual decline between 2002 and 2012. Declines appear to be continuing at an alarming rate. (Chartier et al. 2011; Partners in Flight Science Committee 2013; Sauer et al. 2014)
Birds	Hooded warbler	<i>Wilsonia citrina</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). The population estimate for this specie is 6,000. Comparison of the data from the two Atlases indicates both a small local increase in the breeding population of Hooded

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			Warblers in Michigan and a range expansion. (Chartier et al. 2011; Partners in Flight Science Committee 2013)
Birds	King rail	Rallus elegans	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Endangered (2014). Detections during the Michigan Breeding Bird Atlas II were forthcoming in just eight blocks, with only a single confirmation of breeding. King rails were detected at slightly greater levels (13 blocks) during MBBA I, perhaps indicating a continuation of gradual historical declines during recent decades. Indeed, systematic surveying of 82 wetlands within 3 kilometers of the Great Lakes shore during the mid-2000s, which included the use of prerecorded playback, yielded not a single observation of this species (M. Sanders, pers. Comm.). Similar targeted surveying as late as 1986 had yielded as many as 26 individuals. This species is clearly down to perilously low levels in Michigan. (Chartier et al. 2011; Rabe 2001)
Birds	Kirtland's warbler	Dendroica kirtlandii	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain Endangered (2014). Although the rate of population increase has slowed, the male count has more than doubled since 1994. This species has broadened its spatial distribution across the Lower Peninsula breeding

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			range since the Breeding Bird Atlas I in response to the type of breeding habitat available and the increasing population. The Recovery Team is working on delisting this species. This species is Federally Endangered. (Chartier et al. 2011)
Birds	Least bittern	Ixobrychus exilis	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). The Michigan breeding bird atlas (MBBA) II indicated a decline across the state in the number of survey blocks containing least bittern compared to MBBA I. The status of this species does not appear to have improved since the last review, yet it can still occur as a locally common breeding species in wetlands with suitable nesting habitat. The JV Waterbird Group estimates that there are 835 in Michigan (Chartier et al. 2011; Soulliere et al. 2007)
Birds	Long-eared owl	Asio otus	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). During the Michigan Breeding Bird Atlas (MBBA) II this species was reported in just 1.55% of southern Lower Peninsula townships, with the only report of confirmed breeding coming from Muskegon County. The eluded detection, but did have a confirmed breeding from Isabella County. In the Upper Peninsula, reports

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			increased from 0.98% of townships in the MBBA I to 1.45% in MBBA II. This species is of special concern or threatened in most mid-western, eastern and New England states in which it bred. (Chartier et al. 2011)
Birds	Louisiana waterthrush	Seiurus motacilla	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). In Michigan Breeding Bird Atlas II, this species was confirmed in 5 blocks and recorded as probable in 10 blocks (Hull 2011). Adjusted for estimates of effort, Hull (2011) concluded this species suffered a substantial decline in the southern Lower Peninsula, and a slight increase in the northern Lower Peninsula. This species is data deficient. (Chartier et al. 2011)
Birds	Merlin	Falco columbarius	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to be downlisted from Threatened to Special Concern (2014). Merlins have experienced a widespread increase in numbers in Michigan and the whole Great Lakes region in recent years. They no longer warrant listing as Threatened, though should remain Special Concern as a precaution as numbers continue to rebound. (Chartier et al. 2011; Partners in Flight Science Committee 2013)
Birds	Migrant loggerhead shrike	Lanius ludovicianus migrans	Expert review (2005); Technical Advisory Committee for the T&E list revision

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			<p>recommended this species to remain listed as Endangered (2014). Populations of this subspecies have continued their long-term decline regionally as well as Michigan. None of the sites that held nesting shrikes during the 1993-1998 Michigan Breeding Bird Atlas period were occupied by shrikes in 2002-2008 Atlas period, and no breeding was confirmed anywhere in the state. The last confirmed breeding record in Michigan was apparently in 2001 in Kalamazoo County (Chartier et al. 2011). Since 2008, single shrikes have been reported in Michigan, most in Upper Peninsula and northern Lower Peninsula counties (Sullivan et al. 2009). There have been no recent nesting reports.</p>
Birds	Northern goshawk	Accipiter gentilis	<p>Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Population estimates for this species is 1,500. It is unclear if the breeding range has expanded farther, or may have actually contracted. (Chartier et al. 2011; Partners in Flight Science Committee 2013)</p>
Birds	Northern harrier	Circus cyaneus	<p>Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain Special Concern (2014). Population estimate for this species is 3,000 in Michigan. There is concern that their populations in Michigan may</p>

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			be declining. These birds appear to be declining across their range. (Chartier et al. 2011; Smith et al. 2011; Partners in Flight Science Committee 2013)
Birds	Osprey	Pandion haliaetus	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain Special Concern (2014). The population appears to be increasing, particularly in the Southern Lower Peninsula. If this trend continues the species should be considered for delisting at the next review. (Chartier et al. 2011; Partners in Flight Science Committee 2013)
Birds	Peregrine falcon	Falco peregrinus	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to be downgraded from Endangered to Threatened (2014). Reintroduction program and expansion of birds onto human structures has resulted in an increase in the number of productive nesting pairs. Michigan's recovery goal for the Peregrine was 8 nesting pairs in the Upper Peninsula and 2 in the Lower Peninsula by the year 2000 (Evers 1994, Monfils 2007). While the Lower Peninsula goal has been exceeded, the number of nesting pairs in the Upper Peninsula still falls short. In 2008, there were 25 Peregrine pairs in Michigan (13 successful, 10 with non-known nests; Redig et al. 2012).
Birds	Piping Plover	Charadrius melodus	Expert review (2005);

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			<p>Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Endangered (2014). This species is Federally Endangered. Their populations are still critically low. Great Lakes Piping Plovers continue a moderate recovery reaching 70 pairs in the population in 2014, of these 54 pair nested in Michigan. Despite gains made because of intense conservation efforts, Piping Plovers remain vulnerable to extirpation in the Great Lakes (Cuthbert 2011). (Bird TAC 2014)</p>
Birds	Prairie warbler	<i>Dendroica discolor</i>	<p>Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species remain listed as Endangered (2014). While this warbler seems to be somewhat stabilized in Michigan it remains a very rare species, primarily clinging on in Lake Michigan dune areas. With continued range-wide declines the current status of Endangered should be maintained.</p>
Birds	Prothonotary warbler	<i>Protonotaria citrea</i>	<p>Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain Special Concern (2014). Population estimate for this species in Michigan is 2,000. Their range in the state has stayed relatively stable over the last 20 years; it is unclear if their populations are stable or slightly declining. (Chartier et al. 2011; Partners in Flight Science Committee 2013)</p>

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Birds	Red-headed Woodpecker	Melanerpes erythrocephalus	Expert review (WAP 2005). This species is listed as special concern (TAC 2014). Partners in Flight populations estimate for this species in Michigan is 7,000. The species is considered common but in steep decline across its range. (Chartier et al. 2011; Frei et al. 2015; Partners in Flight Science Committee 2013)
Birds	Red-shouldered hawk	Buteo lineatus	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014); yet increasing survey and research effort appears to result in more element occurrences based on localized increased efforts. There is an estimated population of 4,000 in Michigan. The species relies on mature hardwood forest. (Chartier et al. 2011; Dykstra et al. 2008; Partners in Flight Science Committee 2013)
Birds	Sharp-tailed grouse	Tympanuchus phasianellus	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). There are some long term viability concerns for this species in Michigan and the current population is estimated to be 900 in Michigan. Populations appear to be declining based on intensive long-term lek monitoring within barrens habitat across the National Forest. (Partners in Flight Science committee 2013)
Birds	Short-eared owl	Asio flammeus	Expert review (2005); Technical Advisory Committee for the T&E list revision

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			recommended this species to remain listed as Endangered (2014). Results from the Michigan Breeding Bird Atlas I indicated 15 breeding season occurrences (by block), while the most recent Atlas only found Short-eared Owl in 6 blocks; estimated detection of 6 pairs. There is an estimated population of 110 in Michigan. (Chartier et al. 2011; Partners in Flight Science Committee 2013)
Birds	Spruce grouse	Falciennis Canadensis	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). There are only 10 known occurrences in the state's Natural Heritage database. Increased monitoring and survey effort is needed to determine true population trend.
Birds	Trumpeter swan	Cygnus buccinators	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to be down-listed from Threatened to Special Concern (2014), because their restoration goal has been exceeded and breeding distribution and numbers continue to expand slowly statewide (TAC 2014; Sullivan et al. 2009)
Birds	Western meadowlark	Sturnella neglecta	Expert review (2005); Technical Advisory Committee for the T&E revision recommends this species remain listed as Special Concern (2014). Most data indicate this species is declining throughout

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			its range. Population estimate in Michigan is 1,000 individuals. (Partners in Flight Science Committee 2013)
Birds	Whip-poor-will	Caprimulgus vociferous	Expert review (WAP 2005). The population estimate for this species is ~100,000. However, there is a long-term declining trend and it appears that they are losing parts of their range in the southern Lower Peninsula. (Chartier et al. 2011; Partners in Flight Science Committee 2013; Sauer et al. 2014)
Birds	Wilson's Phalarope	Phalaropus tricolor	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Breeding was confirmed for the first time since 1934 during the Michigan Breeding Bird Atlas II. (Chartier et al. 2011)
Birds	Yellow Rail	Coturnicops noveboracensis	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species remain as Threatened (2014). The observation of yellow rail at a greater number of survey blocks during the Michigan Breeding Bird Atlas (MBBA) II and a locations not documented during MBBA I indicates that Michigan's population is probably stable; however without a standardized survey it is difficult to assess its status. (Chartier et al. 2011; Soulliere et al. 2007). The JV estimates Michigan's population to be 100 birds. There are 9 element occurrences, four of which are

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			viable.
Birds	Yellow-headed blackbird	Xanthocephalus xanthocephalus	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). The Great Lakes area represents an eastern projection of this species range. They did not nest in Michigan until the 1950s. Michigan does not have substantial numbers of Yellow-headed Blackbirds; the highest total reported during the Michigan Breeding Bird Atlas II was 30 in Bay Co. (Chartier et al. 2011)
Birds	Yellow-throated warbler	Dendroica dominica	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species remain listed as Threatened (2014). The Michigan Breeding Bird Atlas (MBBA) I indicates 7 breeding season occurrences (by block) while the most recent Atlas found these warblers in 9 blocks. The MBBA II estimated detection of 23 pairs. There is an estimated population of 500 in Michigan. (Chartier et al. 2011; Partners in Flight Science Committee 2013)
Crayfish	Big water crayfish	Cambarus robustus	Expert review (2014); Technical Advisory Committee for the T&E list revision recommended that this species be added to the list as SC (2014)
Crayfish	Calico crayfish of papershell crayfish	Orconectes immunis	Expert review (2014); Technical Advisory Committee for the T&E list revision recommended this species be added to the list as T (2014)

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Fish	Bigmouth shiner	<i>Notropis dorsalis</i>	Expert review (2005); Technical Advisory Committee recommends that this species be elevated to Threatened from Special Concern (2014). Latta (2005) indicated there are fewer than ten populations remaining in Michigan.
Fish	Black Redhorse	<i>Moxostoma duquesnei</i>	Expert review (2005); Technical Advisory Committee recommended that this species be elevated to special concern (2014). Undergone decline in Michigan leaving it uncommon and further declines would leave it threatened (2014).
Fish	Brindled madtom	<i>Noturus miurus</i>	Expert review (2005); Technical Advisory Committee recommends this species be elevated to Threatened from Special Concern (2014). Only present in Huron River and Lake St. Clair and populations are declining for unknown reasons (2014).
Fish	Channel darter	<i>Percina copelandi</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species remain as Endangered (2014). Fewer than three populations in Michigan and no recent capture records (2014).
Fish	Creek chubsucker	<i>Erimyzon claviformis</i>	Expert review (2005); Technical Advisory Committee recommends species to continue being listed as Endangered (2014)
Fish	Eastern sand darter	<i>Ammocrypta pellucida</i>	Expert review (2005); Technical Advisory Committee recommends this species remain listed as Threatened (2014). Only five populations remain with range seriously declining in recent years

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			(2014).
Fish	Ives lake cisco	Coregonus hubbsi	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species be listed as Special Concern instead of Threatened (2014). Only one population found in a secure inland lake (2014).
Fish	Kiyi	Coregonus kiyi	Expert review (2005); Technical Advisory Committee recommended this species remain as Special Concern (2014). Often by-catch in commercial fisheries (2014).
Fish	Lake herring or cisco	Coregonus artedi	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Threatened (2014). Ongoing research is expected to answer key questions (2014).
Fish	Lake sturgeon	Acipenser fulvescens	Expert review (2005); Technical Advisory Committee recommends that this species stay listed as Threatened (2014). Seven stable populations. Long lived species with long generational times and compromised spawning areas (2014).
Fish	Mooneye	Hiodon tergisus	Expert review (2005); Technical Advisory Committee recommends that this species be elevated to Endangered from Threatened (2014). Only two populations known to exist locally (2014).
Fish	Northern madtom	Noturus stigmosus	Expert review (2005); Technical Advisory Committee recommends species remain listed as Endangered (2014). Three known populations in Michigan and rare/critically imperiled throughout their

Category	Common Name	Scientific Name	Inclusion Rationale
			range outside of Michigan (2014).
Fish	Orangethroat darter	<i>Etheostoma spectabile</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species remain as Special Concern (2014). More surveys needed due to serious decline in Michigan (2014).
Fish	Pugnose minnow	<i>Opsopoeodus emiliae</i>	Expert review (2005); Technical Advisory Committee recommends species to continue to be listed as Endangered (2014). Rare species with three or fewer stable populations in the state (2014).
Fish	Pugnose shiner	<i>Notropis anogenus</i>	Expert review (2005); Technical Advisory Committee recommends that this species stay listed as Endangered (2014). Species only found in three locations in the last 20 years (2014).
Fish	Redside dace	<i>Clinostomus elongates</i>	Expert review (2005); Technical Advisory Committee recommends that this species stay listed as Endangered (2014). Only three populations remain in Michigan and habitat continues to be degraded and lost (2014).
Fish	River darter	<i>Percina shumardi</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species remain as Endangered (2014). Rare species with fewer than three populations in Michigan (2014).
Fish	River redhorse	<i>Moxostoma carinatum</i>	Expert review (2005); Technical Advisory Committee recommended that this species continue to be listed as Threatened (2014). Found in

Category	Common Name	Scientific Name	Inclusion Rationale
			three watersheds and has fewer than 10 populations in Michigan (2014).
Fish	Sauger	Sander Canadensis	Expert review (2005); Technical Advisory Committee for the T and E list revision recommended this species be elevated to Endangered from Threatened (2014). Rare in Michigan with populations declining as water clarity has increased (2014).
Fish	Shortjaw cisco	Coregonus zenithicus	Expert review (2005); Technical Advisory Committee recommended this species be elevated to Endangered from Threatened (2014). Rare across range with less than three populations in Michigan, susceptible to commercial by-catch (Bronte et al. 2010).
Fish	Silver chub	Macrhybopsis storeriana	Expert review (2005); Technical Advisory Committee recommended that this species stay listed as Special Concern (2014). Only two populations known in Michigan (2014).
Fish	Silver shiner	Notropis photogenis	Expert review (2005); Technical Advisory Committee recommends this species to stay listed as Endangered (2014). Two known populations in Michigan (2014).
Fish	Siskiwit lake cisco	Coregonus bartlettii	T&E technical advisory committee review 2009; Technical Advisory Committee recommends this species to be listed as Special Concern instead of Threatened (2014). Secure in Isle Royale National Park; needs further evaluation to determine taxonomic status (2014).
Fish	Southern redbelly dace	Phoxinus erythrogaster	Expert review (2005);

Category	Common Name	Scientific Name	Inclusion Rationale
			Technical Advisory Committee recommends this species continue to be listed as Endangered (2014). Estimated to have 3 or fewer populations (2014).
Fish	Spoonhead sculpin	<i>Cottus ricei</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species remain as Special Concern (2014). Stable in Lake Superior but extirpated from other Great Lakes; threatened by quagga mussels and loss of <i>Diporeia</i> (2014).
Fish	Starhead topminnow	<i>Fundulus dispar</i>	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Uncommon in Michigan and further reductions would lead to a threatened status (2014).
Freshwater Snails	Acorn ramshorn	<i>Planorbella multivolvis</i>	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). Possibly extirpated, more surveys needed (2014).
Freshwater Snails	Aquatic snail (no common name)	<i>Planorbella smithi</i>	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). Two occurrences documented in Cheboygan County. No occurrences since 1985 and the species is easily disturbed by shore-line development and chemical molluscicides (MNFI 2007).
Freshwater Snails	Boreal fossaria	<i>Fossaria galbana</i>	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as

Category	Common Name	Scientific Name	Inclusion Rationale
			Special Concern (2014). There are three occurrences documented in the northern Lower Peninsula (MNFI 2007). The species requires highly oxygenated aquatic habitats (MNFI 2007).
Freshwater Snails	Broadshoulder physa	<i>Physella parkeri</i>	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Threatened (2014). Six occurrences in MNFI database, threatened by habitat loss, sedimentation, and population fragmentation (MNFI 2007).
Freshwater Snails	Brown walker	<i>Pomatiopsis cincinnatiensis</i>	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Occurrences in nine Michigan counties though many are historical; the species depends on maintaining natural vegetative canopy cover along stream banks (MNFI 2007).
Freshwater Snails	Bugle fossaria	<i>Fossaria cyclostoma</i>	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Threatened (2014). There are no documented occurrences of the species in the MNFI database, and the species is likely negatively impacted by recreational disturbance (MNFI 2007).
Freshwater Snails	Campelema spire snail	<i>Cincinnatiatia cincinnatiensis</i>	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014).

Category	Common Name	Scientific Name	Inclusion Rationale
			Historically found throughout Michigan, the species requires healthy water quality and is threatened by water pollution (MNFI 2007).
Freshwater Snails	Canadian dusksnail	Lyogyrus walker	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Only one historic occurrence; more surveys needed (MNFI 2007).
Freshwater Snails	Coldwater pondsnail	Stagnicola woodruffi	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Five occurrences documented in MNFI database, the species requires healthy habitat structure and water quality (MNFI 2007).
Freshwater Snails	Deepwater pondsnail	Stagnicola contracta	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). No recent occurrences, and little data available (MNFI 2007).
Freshwater Snails	Flanged valvata	Valvata winnebagoensis	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). No documented occurrences in the MNFI database; the species is negatively affected by dredging and acidic water (MNFI 2007).
Freshwater Snails	Globe siltsnail	Birgella subglobosus	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species

Category	Common Name	Scientific Name	Inclusion Rationale
			remain listed as Special Concern (2014).The species requires healthy aquatic systems ; there are no known occurrences of the species in the MNFI database (MNFI 2007).
Freshwater Snails	Gravel pyrg	Pyrgulopsis letsoni	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Seven historical occurrences in MNFI database, more research needed (MNFI 2007).
Freshwater Snails	Great Lakes physa	Physella magnalacustris	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Occurrences recorded in 11 Michigan counties, acidic waters are a possible threat to the species (MNFI 2007).
Freshwater Snails	Lake Superior ramshorn	Helisoma anceps royalense	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). No known occurrences in MNFI database and more surveys needed. Negatively affected by agriculture runoff and acid rain (MNFI 2007).
Freshwater Snails	Petoskey pondsnail	Stagnicola petoskeyensis	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). Only one documented occurrence in Michigan, possibly extirpated from the state; more research needed (MNFI 2007).
Freshwater Snails	Purplecap valvata	Valvata perdepressa	T&E technical advisory

Category	Common Name	Scientific Name	Inclusion Rationale
			committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Globally ranked as vulnerable, there are no occurrences recorded in the MNFI database since 1942 (MNFI 2007).
Freshwater Snails	Spindle lymnaea	Acella haldemani	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Special Concern (2014) due to a lack of data.
Freshwater Snails	Watercress snail	Fontigens nickliniana	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Found mainly in the southwestern portion of Michigan, most recorded occurrences of the species are historical (MNFI 2007). The species is usually found on watercress which is an exotic invasive species that gets crowded out by other invasive plants (MNFI 2007).
Insects: Alderflies, Dobsonflies & Fishflies	A fishfly	Neohermes concolor	T&E technical advisory committee review 2009; Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). The species has no known occurrences documented in the MNFI database (MNFI 2007).
Insects: Bees	Rusty-patched bumble bee	Bombus affinis	T&E technical advisory committee review 2009; Technical Advisory Committee for the T&E list revision recommended this species to remain listed as

Category	Common Name	Scientific Name	Inclusion Rationale
			Special Concern (2014). Distribution and abundance is unknown (MNFI 2007).
Insects: Bees	Yellow banded bumble bee	<i>Bombus terricola</i>	T&E technical advisory committee review 2009; Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Distribution and abundance are unknown (MNFI 2007).
Insects: Beetles	Black lordithon rove beetle	<i>Lordithon niger</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). The species is possibly extirpated from Michigan, but more research is needed because potential habitat includes much of the northern Lower and Upper peninsulas (MNFI 2007). No known occurrences (MNFI 2007)
Insects: Beetles	Cantrall's bog beetle	<i>Liodessus cantralli</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Only known at one site in the state, distribution and abundance are unknown (MNFI 2007).
Insects: Beetles	Douglas stenelmis riffle beetle	<i>Stenelmis douglasensis</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). There are occurrences documented in eight different Michigan counties, however most are historical (MNFI 2007).
Insects:	Hungerford's crawling	<i>Brychius hungerfordi</i>	Expert review (2005);

Category	Common Name	Scientific Name	Inclusion Rationale
Beetles	water beetle		Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Endangered (2014). Federally listed and rare in the state (2014). There are only 8 occurrences known in the state (MNFI 2007).
Insects: Beetles	Six-banded longhorn beetle	<i>Dryobius sexnotatus</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). Distribution and abundance are unknown; no records in the MNFI database (2007).
Insects: Butterflies and Moths	3-striped oncocnemis	<i>Oncocnemis piffardi</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). There are two historical occurrences listed on the MNFI database and the species is considered extremely rare so more research is needed (MNFI 2007).
Insects: Butterflies and Moths	Aweme borer	<i>Papaipema aweme</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Only one recent record exists in Michigan. Minnesota found a recent record in different habitats than once thought. Expanded targeted surveys are needed. (MNFI recommendations 2014)
Insects: Butterflies and Moths	Blazing star borer	<i>Papaipema beeriana</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to

Category	Common Name	Scientific Name	Inclusion Rationale
			remain listed as Special Concern (2014). There are 24 known occurrences of this species since 1984 (MNFI 2007).
Insects: Butterflies and Moths	Boreal brachionyncha	Brachionycha borealis	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Few known records and likely undersampled due to early spring flight. Gypsy Moth spraying is a likely threat to the species (MNFI 2007).
Insects: Butterflies and Moths	Corylus dagger moth	Acronicta falcata	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Rare rangewide. Surveys needed. There are only 2 known occurrences but they are historic (MNFI 2007).
Insects: Butterflies and Moths	Culvers root borer	Papaipema sciata	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species be elevated to Threatened from Special Concern (2014). There are 10 known extant records in MNFI database (2007).
Insects: Butterflies and Moths	Doll's merolonche	Merolonche dolli	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Easier to find as larvae vs. adult (MNFI 2007). All known records are historic (MNFI 2007).
Insects: Butterflies and Moths	Dukes' skipper	Euphyes dukesi	Expert review (2005); Technical Advisory Committee for the T&E list revision

Category	Common Name	Scientific Name	Inclusion Rationale
			recommended this species to remain listed as Threatened (2014). They are found in 6 counties; there are 18 known sites known in Michigan (MNFI 2007).
Insects: Butterflies and Moths	Dune cutworm	<i>Euxoa aurulenta</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). More surveys needed (MNFI 2007). All known occurrences are from before 1994 (MNFI 2007).
Insects: Butterflies and Moths	Dusted skipper	<i>Atrytonopsis hianna</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Recent surveys have continued to find this species, however their distribution is restricted (MNFI 2007).
Insects: Butterflies and Moths	Early hairstreak	<i>Erora laeta</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Negatively affected by beech scale (MNFI 2007). There are only 3 known historic occurrences (MNFI 2007).
Insects: Butterflies and Moths	Freija fritillary	<i>Boloria freija</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). There are known occurrences in six Upper Peninsula counties, however lack of habitat is a major concern (MNFI 2007).
Insects:	Frigga fritillary	<i>Boloria frigga</i>	Expert review (2005);

Category	Common Name	Scientific Name	Inclusion Rationale
Butterflies and Moths			Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). The species does not have records more current than 1999 in the MNFI database. The species requires Patterned fens or Bogs (MNFI 2007).
Insects: Butterflies and Moths	Frosted elfin	Incisalia irus	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). 12 records within the last 20 years (MNFI 2007).
Insects: Butterflies and Moths	Giant eucosma moth	Eucosma giganteana	Expert review (2014); Technical Advisory Committee for the T&E list revision recommended this species to be listed as Special Concern (2014). 2 specimens known from Michigan; host species very rare and Michigan is the northern edge of species distribution; more surveys needed (MNFI 2007).
Insects: Butterflies and Moths	Gold moth	Basilodes pepita	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Until recently only 2 records were known for this species. Recent surveys have found this species in Wayne and Hillsdale counties. Targeted surveys are needed. (MNFI 2007)
Insects: Butterflies and Moths	Golden borer	Papaipema cerina	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). There are 8

Category	Common Name	Scientific Name	Inclusion Rationale
			known occurrences in the very southwestern part of the state (MNFI 2007).
Insects: Butterflies and Moths	Grizzled skipper	Pyrgus wyandot	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species be elevated to Threatened from Special Concern (2014). More surveys needed with only 4 non-historic sites in MNFI database (MNFI 2007).
Insects: Butterflies and Moths	Karner blue	Lycaeides melissa samuelis	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). Federally listed; populations crashing in parts of Michigan (MNFI 2007).
Insects: Butterflies and Moths	Large marble	Euchloe ausonides	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). There is only one occurrence documented in Michigan on Isle Royale (MNFI 2007).
Insects: Butterflies and Moths	Leadplant moth	Schinia lucens	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Endangered (2014). Only 1 recorded occurrence, more surveys needed (MNFI 2007).
Insects: Butterflies and Moths	Macoun's arctic	Oeneis macounii	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). There is only one known occurrence documented in the MNFI database but more surveys are

Category	Common Name	Scientific Name	Inclusion Rationale
			needed (MNFI 2007).
Insects: Butterflies and Moths	Magdalen underwing	Catocala illecta	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). There are three known occurrences in Michigan; more research is needed about the status, life history and ecology of the species (MNFI 2007).
Insects: Butterflies and Moths	Maritime sunflower borer	Papaipema maritima	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Ten sites are known in the Natural Heritage database, but 8 of those are ranked as Historic. Surveys are needed (MNFI recommendations 2014)
Insects: Butterflies and Moths	Michigan dune dart	Copablepharon michiganensis	Expert review (2014); Technical Advisory Committee for the T&E list revision recommended this species to be listed as Special Concern (2014). Endemic to Michigan and Wisconsin dunes; more surveys needed (MNFI 2007).
Insects: Butterflies and Moths	Mitchell's satyr	Neonympha mitchellii mitchellii	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Endangered (2014). Federally listed with population numbers still declining; 14 extant populations in Michigan; 6 are considered viable (MNFI 2007).
Insects: Butterflies and Moths	Monarch Butterfly	Danaus plexippus	In June 2014, President Obama issued a memorandum establishing a Pollinator Health Task Force with the responsibility to

Category	Common Name	Scientific Name	Inclusion Rationale
			<p>promote the health of honey bees, and other managed bees, wild bees, butterflies and other pollinating insects, birds and bats. This task force published their strategy May 19, 2015. One of their 3 overarching goals is to “Increase the eastern population of the monarch butterfly to 225 million butterflies occupying an area of approximately 15 acres (6 hectares) in the overwintering grounds in Mexico, through domestic/international actions and public-private partnerships, by 2020.” On page 26 of the national strategy the authors state “The FWS is partnering with the Association of Fish and Wildlife Agencies and encouraging states to include pollinators and the monarch butterfly as Species of Greatest Conservation Need in their State Wildlife Action Plans.” The MOU between USFWS and AFWA says “We ask that you consider adding the monarch butterfly and other pollinator species as a Species of Greatest Conservation Need in your State Wildlife Action Plan (see link below).”</p>
<p>Insects: Butterflies and Moths</p>	<p>Mottled duskywing</p>	<p><i>Erynnis martialis</i></p>	<p>Expert review (2014); Technical Advisory Committee for the T&E list revision recommended this species to be listed as Special Concern (2014) Fewer than 20 EO's known for the state; more surveys needed (MNFI 2007).</p>
<p>Insects: Butterflies</p>	<p>Newman's brocade</p>	<p><i>Meropleon ambifusca</i></p>	<p>Expert review (2005); Technical Advisory Committee</p>

Category	Common Name	Scientific Name	Inclusion Rationale
and Moths			for the T&E list revision recommended this species to remain listed as Special Concern (2014). Currently associated with fens and mesic tallgrass prairie species (MNFI 2007). There are only 4 known occurrences in the state (MNFI 2007).
Insects: Butterflies and Moths	Northern blue	Lycaeides idas nabokovi	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). Only 9 occurrences in Michigan (2007).
Insects: Butterflies and Moths	Northern hairstreak	Fixsenia favonius ontario	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). One new record in Washtenaw County, males not easily seen (MNFI 2007). There is only one other known occurrence that was historic.
Insects: Butterflies and Moths	Ottoo skipper	Hesperia ottoe	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species be elevated to Endangered from Threatened (2014). Prairie restricted species known from few recent sites (MNFI 2007). They occur in 6 counties (MNFI 2007).
Insects: Butterflies and Moths	Persius dusky wing	Erynnis persius persius	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). 30 occurrences in Michigan, more surveys needed (MNFI 2007).
Insects:	Phlox moth	Schinia indiana	Expert review (2005);

Category	Common Name	Scientific Name	Inclusion Rationale
Butterflies and Moths			Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Endangered (2014). Only 3 historical records in Michigan; more surveys needed (MNFI 2007).
Insects: Butterflies and Moths	Pine imperial moth	<i>Eacles imperialis pini</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). MNFI has records for five counties in the northern Lower Peninsula (MNFI 2007) but more information is needed.
Insects: Butterflies and Moths	Pipevine swallowtail	<i>Battus philenor</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Only 6 known occurrences since 1980 (MNFI 2007); however it is common immediately south of Michigan.
Insects: Butterflies and Moths	Poweshiek skipperling	<i>Oarisma poweshiek</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species be elevated to Endangered from Threatened (2014). Federally listed as endangered; Found only in high quality prairie fens in Michigan with only 5 remaining extant sites (MNFI 2007).
Insects: Butterflies and Moths	Quiet underwing	<i>Catocala dulciola</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Very rare and intensely local with larva feeding on only a few species.

Category	Common Name	Scientific Name	Inclusion Rationale
			More surveys needed (MNFI 2007).
Insects: Butterflies and Moths	Red-disked alpine	<i>Erebia discoidalis</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). There are five recorded occurrences of the species in the western Upper Peninsula but no occurrences after 1988 have been recorded in the MNFI database; more research needed (MNFI 2007).
Insects: Butterflies and Moths	Regal fern borer	<i>Papaipema speciosissima</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). There are only 7 occurrences know since 1995 (MNFI 2007).
Insects: Butterflies and Moths	Silphium borer moth	<i>Papaipema silphii</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). Only 3 non-historical occurrences in MNFI database, surveys needed (MNFI 2007).
Insects: Butterflies and Moths	Spartina moth	<i>Spartiniphaga inops</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). More survey work needed, only 2 records in the past 20 years (MNFI 2007).
Insects: Butterflies and Moths	Sprague's pygarctia	<i>Pygarctia spraguei</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). The species is tied to the host plant <i>Euphorbia corollata</i> and

Category	Common Name	Scientific Name	Inclusion Rationale
			requires a fire regime (MNFI 2007). There are no recent records; 5 occurrences were recorded in the 1990's (MNFI 2007).
Insects: Butterflies and Moths	Sulfur rosinweed stem borer	<i>Eucosma bipunctella</i>	Expert review (2014); Technical Advisory Committee for the T&E list revision recommended this species to be listed as Special Concern (2014). Host species rare and intensely local; most recent specimen is from 48 years ago (MNFI 2007).
Insects: Butterflies and Moths	Swamp metalmark	<i>Calephelis mutica</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species be elevated to Endangered from Special Concern (2014). Last confirmed record is from 2008 with only 4 non-historical records; fen species (MNFI 2007).
Insects: Butterflies and Moths	The relic	<i>Dichagyris reliqua</i>	Expert review (2014); Technical Advisory Committee for the T&E list revision recommended this species to be listed as Special Concern (2014). Extremely rare and local; more surveys needed (MNFI 2007).
Insects: Butterflies and Moths	Three-horned moth	<i>Pachypolia atricornis</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Difficult to detect and uncommon in Michigan (MNFI 2007). There are only 2 historical known occurrences (MNFI 2007).
Insects: Butterflies and Moths	Three-staff underwing	<i>Catocala amestris</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision

Category	Common Name	Scientific Name	Inclusion Rationale
			recommended this species to remain listed as Endangered (2014). Only known from one location in Michigan (MNFI 2007).
Insects: Butterflies and Moths	Yellow-banded Day-sphinx	Proserpinus flavofasciata	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). The species is only known from two specimens collected in one county and current distribution is unknown so more data is needed (MNFI 2007).
Insects: Caddisflies	A caddisfly	Limnephilus pallens	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Only known at one site, more surveys needed (MNFI 2007).
Insects: Cicadas and Hoppers	Angular spittlebug	Lepyronia angulifera	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). There are recent occurrences throughout the southern Lower Peninsula, but is closely associated with prairie fens (MNFI 2007). There are less than 15 occurrences known (MNFI 2007).
Insects: Cicadas and Hoppers	Great Plains spittlebug	Lepyronia gibbosa	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). There are documented occurrences in seven Michigan counties,

Category	Common Name	Scientific Name	Inclusion Rationale
			but populations benefit from a specific fire regime (MNFI 2007).
Insects: Cicadas and Hoppers	Huron River leafhopper	Flexamia huroni	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species be elevated to Endangered from Threatened (2014). Feeds on a state threatened plant and known only from 5 sites in northwestern Oakland County (2014).
Insects: Cicadas and Hoppers	Leafhopper	Flexamia reflexus	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species be elevated to Threatened from Special Concern (2014). Rare rangewide and foodplant is uncommon in Michigan (2014). Only 7 known occurrences in the state (MNFI 2007).
Insects: Cicadas and Hoppers	Leafhopper	Dorydiella kansana	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as SC (2014). There are 7 known locations within the last 20 years (MNFI 2007).
Insects: Cicadas and Hoppers	Robertson's Flightless Planthopper	Fitchiella robertsoni	MNFI expert review 2009; Technical Advisory Committee for the T&E list revision recommended this species be elevated to Endangered from Special Concern (2014). Globally rare and known from only 2 sites in the state (2014).
Insects: Dragonflies and Damselflies	Elusive snaketail	Stylurus notatus	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species be elevated to Threatened from Special Concern (2014). Found

Category	Common Name	Scientific Name	Inclusion Rationale
			in 6 Michigan counties since 1998 (2014).
Insects: Dragonflies and Damselflies	Extra-striped snaketail	Ophiogomphus anomalus	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Larval records from 2 UP counties, adults very hard to see over water (MNFI 2007).
Insects: Dragonflies and Damselflies	Grey petaltail	Tachopteryx thoreyi	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species be elevated to Endangered from Threatened (2014). Habitat specialist not found in any new sites in the past decade (2014). Only 2 known historic occurrences (MNFI 2007).
Insects: Dragonflies and Damselflies	Hine's emerald dragonfly	Somatochlora hineana	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Endangered (2014); Federally listed (2014). There are 16 element occurrences; 8 of which are viable.
Insects: Dragonflies and Damselflies	Incurvate emerald	Somatochlora incurvata	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Additional records needed (MNFI 2007). There are 24 known locations within the last 20 years (MNFI 2007).
Insects: Dragonflies and Damselflies	Laura's snaketail	Stylurus laurae	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Recent

Category	Common Name	Scientific Name	Inclusion Rationale
			records from 9 counties; Michigan is the northern end of range (MNFI 2007).
Insects: Dragonflies and Damselflies	Pygmy snaketail	Ophiogomphus howei	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). Only in one river system in the Upper Peninsula (2014).
Insects: Dragonflies and Damselflies	Riverine snaketail	Stylurus amnicola	Expert review(2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). At least 4 records since 2000 and historic records from at least 16 locations (MNFI 2007).
Insects: Dragonflies and Damselflies	Russet-tipped clubtail	Stylurus plagiatus	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species be elevated to Endangered from Threatened (2014). Largest population likely extirpated; many surveys unsuccessful; requires a specific upland/riparian habitat configuration (2014). There are 3 known occurrences (MNFI 2007).
Insects: Grasshoppers and Crickets	Atlantic-coast locust	Psinidia fenestralis	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Dune specialist with disjunct populations around the southern Great Lakes (MNFI 2007). Distribution and abundance is unknown (MNFI 2007)
Insects:	Blue-legged	Melanoplus	Expert review (2005);

Category	Common Name	Scientific Name	Inclusion Rationale
Grasshoppers and Crickets	locust	flavidus	Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Found in 8 counties in western Lower Peninsula (MNFI 2007).
Insects: Grasshoppers and Crickets	Bog conehead	Neoconocephalus lyristes	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Occurrences in 4 counties in southern Michigan (MNFI 2007).
Insects: Grasshoppers and Crickets	Davis's shieldbearer	Atlanticus davisii	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Distribution and abundance is unknown; targeted surveys are needed.
Insects: Grasshoppers and Crickets	Delicate meadow katydid	Orchelimum delicatum	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Recorded in 6 counties in southern Michigan; wet-mesic prairie specialist that is rare and local (MNFI 2007).
Insects: Grasshoppers and Crickets	Green desert grasshopper	Orphulella pelidna	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Records from 6 counties in the Lower Peninsula (MNFI 2007).
Insects: Grasshoppers and Crickets	Hoosier locust	Paroxya hoosieri	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to

Category	Common Name	Scientific Name	Inclusion Rationale
			remain listed as Special Concern (2014). Rare and local with disjunct populations in the Great Lakes region (MNFI 2007). Distribution and abundance in Michigan is unknown.
Insects: Grasshoppers and Crickets	Lake Huron locust	Trimerotropis huroniana	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). Great Lakes endemic species that is a dune specialist (2014).
Insects: Grasshoppers and Crickets	Pine katydid	Scudderia fasciata	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). There is only one documented occurrence of the species in Michigan (MNFI 2007).
Insects: Grasshoppers and Crickets	Red-faced meadow katydid	Orchelimum concinnum	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Recorded in 8 southern Michigan counties; wet prairie/prairie fen specialist (MNFI 2007).
Insects: Grasshoppers and Crickets	Secretive locust	Appalachia arcana	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). A Michigan endemic species and their range is very restricted to then northeast portion of the state. Recent surveys of historic sites have found individuals; more surveys are needed to understand their distribution

Category	Common Name	Scientific Name	Inclusion Rationale
			and abundance (MNFI recommendation 2014).
Insects: Grasshoppers and Crickets	Tamarack tree cricket	<i>Oecanthus laricis</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). There are 29 known viable element occurrence records; 48 known sites documented since 1994. Found mainly in prairie fens in the south (MNFI 2007).
Insects: Mayflies	A mayfly	<i>Epeorus suffusus</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). There are no known occurrences in Michigan in the MNFI database. Further research is needed (MNFI 2007).
Insects: Mayflies	A mayfly	<i>Habrophlebiodes americana</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern(2014). Only one known record from the UP MI (UMMZ Insect Division); more surveys needed.
Insects: Mayflies	Walker's Tusked sprawler	<i>Anthopotamus verticis</i>	T&E technical advisory committee review 2009; Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). Appears to be rare and local rangewide; records in Michigan are historic (MNFI recommendations 2014).
Insects: Stoneflies	A stonefly	<i>Isogenoides doratus</i>	Expert review (2005); Technical Advisory Committee

Category	Common Name	Scientific Name	Inclusion Rationale
			for the T&E list revision did not review stoneflies. Cuthrell recommended only keeping this stonefly because it is ranked S1 or S2 on the SC list (2014)
Insects: Stoneflies	Arctic Sprintfly	Arcynopteryx compacta	Expert review (2005); Technical Advisory Committee for the T&E list revision did not review stoneflies. Cuthrell recommended only keeping this stonefly because it is ranked S1 or S2 on the SC list (2014)
Land Snails	A land snail (no common name)	Vertigo modesta parietalis	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). There is only one known occurrence of the species recorded in the MNFI database, and the species has very specific habitat requirements (MNFI 2007).
Land Snails	A land snail (no common name)	Glyphyalinia solida	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). No known occurrences in MNFI database (2014).
Land Snails	A land snail (no common name)	Vertigo modesta modesta	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). There are only two known occurrences listed in the MNFI database, most recently in 1998. This species seems restricted to small, isolated colonies in very specific habitat (MNFI 2007).
Land Snails	A land snail (no common name)	Catinella gelida	T&E technical advisory committee review 2009; Technical Advisory

Category	Common Name	Scientific Name	Inclusion Rationale
			Committee recommends that this species remain listed as Threatened (2014). There are no documented occurrences in the MNFI database, so the species requires additional research and surveys (MNFI 2007).
Land Snails	A land snail (no common name)	Catinella protracta	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Endangered (2014). Habitat loss, fragmentation, and degradation are the greatest threats to the species (MNFI 2007).
Land Snails	A land snail (no common name)	Vallonia gracilicosta albula	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). There are nine occurrences recorded in the MNFI database all from the Upper Peninsula and there are no recorded occurrences since 1998 (MNFI 2007).
Land Snails	A land snail (no common name)	Euconulus alderi	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Threatened (2014). There are occurrences documented from five Upper Peninsula counties, but the species is sensitive to land-use activities and hydrological changes (MNFI 2007).
Land Snails	Banded globe	Anguispira kochi	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Needs more data (2014).
Land Snails	Carinate	Euchemotrema	T&E technical advisory

Category	Common Name	Scientific Name	Inclusion Rationale
	pillsnail	hubrichti	committee review 2009; Technical Advisory Committee recommends that this species remain listed as Threatened (2014). There are no documented occurrences in the MNFI database, the species has very specific habitat requirements and are negatively affected by recreational rock climbing (MNFI 2007).
Land Snails	Carolina mantleslug	Philomycus carolinianus	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Four occurrences from two counties in MNFI database, more surveys required (MNFI 2007).
Land Snails	Cherrystone drop	Hendersonia occulta	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Threatened (2014). Only two occurrences in MNFI database in one county with the last year observed being 1997; the species is sensitive to trampling (MNFI 2007).
Land Snails	Copper button	Mesomphix cupreus	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Historically found in 21 counties in the southern Lower Peninsula, but the species requires specific microhabitats that are easily disrupted (MNFI 2007).
Land Snails	Crested vertigo	Vertigo pygmaea	Expert review (2005); Technical Advisory Committee for the T&E revision recommends that this species remain listed as Special

Category	Common Name	Scientific Name	Inclusion Rationale
			Concern (2014). There are four known occurrences in Michigan. The species is found in calcareous coastal fens (MNFI 2007).
Land Snails	Deep-throat vertigo	Vertigo nylanderi	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). There are seven documented occurrences in the MNFI database, but the species requires calcareous fens with an open tamarack overstory (MNFI 2007)
Land Snails	Delicate vertigo	Vertigo bollesiana	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Threatened (2014). The species has only been documented at sites that have been stable for approximately 100 years or more and since 1998 the species has only been recorded in one Michigan county (MNFI 2007).
Land Snails	Depressed ambersnail	Oxyloma peoriense	T&E technical advisory committee review 2009; Technical Advisory Committee for the T&E revision recommends that this species remain listed as Special Concern (2014). Three occurrences listed in MNFI database, more surveys needed (MNFI 2007).
Land Snails	Domed disc	Discus patulus	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). There are four occurrences listed in the MNFI database, but more surveys are needed (MNFI 2007).
Land Snails	Eastern flat-whorl	Planogyra	Expert review (2005);

Category	Common Name	Scientific Name	Inclusion Rationale
		asteriscus	Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Ranked as vulnerable in Michigan, the species uses a specific microhabitat that is easily disrupted (MNFI 2007).
Land Snails	File thorn	Carychium nannodes	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Only one occurrence is documented in the MNFI database, but specific site preferences are unknown (MNFI 2007).
Land Snails	Flat dome	Ventridens suppressus	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Found in southeastern Michigan, more research is needed to determine specific habitat needs of the species (MNFI 2007).
Land Snails	Foster mantleslug	Pallifera fosteri	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Threatened (2014). Only one historical occurrence documented in MNFI database, the species' greatest threats includes habitat destruction, fragmentation, and microhabitat loss due to recreation (Kay 1995, Applegarth 1999, Walden 1995, MNFI 2007).
Land Snails	Honey vertigo	Vertigo tridentata	T&E technical advisory committee review 2009; Technical Advisory

Category	Common Name	Scientific Name	Inclusion Rationale
			Committee recommends that this species remain listed as Special Concern (2014). There are two known occurrences in Michigan. The species is threatened by recreational rock climbing, fragmentation, and habitat loss (MNFI 2007).
Land Snails	Hubricht's vertigo	Vertigo hubrichti	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). State imperiled and globally vulnerable, there are fifteen documented occurrences of the species in the MNFI database (MNFI 2007).
Land Snails	Lambda snaggletooth	Gastrocopta holzingeri	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). Only 3 occurrences on record with most recent occurrence in 1998 (MNFI 2007).
Land Snails	Median striate	Striatura meridionalis	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). One occurrence documented in the MNFI database from 2013 negatively affected by high exposure to heavy metals in the environment (MNFI 2007).
Land Snails	Mystery vertigo	Vertigo paradoxa	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). The species has been known to occur in eight Michigan counties, mainly in the Upper Peninsula. The species can be

Category	Common Name	Scientific Name	Inclusion Rationale
			found in a variety of habitats, but has specific microhabitat requirements that are easily disturbed (MNFI 2007).
Land Snails	Pleistocene catinella	Catinella exile	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Threatened (2014). There are three known occurrences listed in the MNFI database. The species requires fens, interdunal wetlands or limestone cobble shores (MNFI 2007).
Land Snails	Proud globe	Mesodon elevatus	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Threatened (2014). Eight historic occurrences in MNFI database; threatened by land-use activities that remove forest canopy cover (MNFI 2007).
Land Snails	Proud globelet	Mesodon pennsylvanicus	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Six occurrences documented in MNFI database; dependent on specific microhabitat that is easily disrupted (MNFI 2007).
Land Snails	Pyramid dome	Ventridens intertextus	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Only one historical occurrence in Michigan. The species is negatively affected by herbicide/insecticide treatment as well as fire management (MNFI 2007).
Land Snails			

Category	Common Name	Scientific Name	Inclusion Rationale
Land Snails	Sealed globelet	Mesodon mitchellianus	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Only one occurrence recorded in MNFI database; dependent on moist and sheltered areas (MNFI 2007).
Land Snails	Six-whorl vertigo	Vertigo morsei	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). Only found in one county in Michigan, the species requires calcareous fens and is vulnerable to foot and ORV traffic (MNFI 2007).
Land Snails	Smooth coil	Helicodiscus singleyanus	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). No known occurrences in MNFI database; negatively affected by road salt and vehicular pollution (MNFI 2007).
Land Snails	Southeastern gem	Hawaiia alachuana	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). More surveys needed as no known occurrences documented in MNFI database (MNFI 2007).
Land Snails	Spike-lip crater	Appalachina sayanus	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). The species has specific microhabitat requirements that are easily disturbed (MNFI 2007).

Category	Common Name	Scientific Name	Inclusion Rationale
Land Snails	Sterki's granule	Guppya sterkii	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). Only two occurrences in Michigan, last observed in 1998 (MNFI 2007).
Land Snails	Tapered vertigo	Vertigo elatior	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Special Concern (2014) the species is state ranked as vulnerable with occurrences documented in six Michigan counties, it is restricted to wetland habitats underlain by limestone (MNFI 2007).
Land Snails	Trumpet vallyonia	Vallonia parvula	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). There are two occurrences recorded in the MNFI database, the species is negatively affected by recreational rock climbing (MNFI 2007).
Land Snails	Velvet wedge	Xolotrema denotata	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). There are no known occurrences listed in the MNFI database, more research needed. The species has specific microhabitat requirements and is sensitive to trampling (MNFI 2007).
Land Snails	Widespread column	Pupilla muscorum	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Historically

Category	Common Name	Scientific Name	Inclusion Rationale
			occurred in four counties, but only recently found in one Michigan county, more surveys needed (MNFI 2007).
Land Snails	Yellow globelet	Mesodon clausus	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Five occurrences recorded in MNFI database; threatened by destruction of habitat (MNFI 2007).
Mammals	Eastern pipistrelle	Pipistrellus subflavus	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended that this species be elevated to Threatened from Special Concern (2014) due to White-nose Syndrome.
Mammals	Evening bat	Nycticeius humeralis	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). The species is extremely rare in the state.
Mammals	Indiana bat	Myotis sodalis	Expert review (2005); Technical Advisory Committee for the Threatened & Endangered Species list revision recommended this species remain listed as Endangered (2014). According to the US Fish and Wildlife Service Michigan's estimated population for Indiana bat is 20 and has been for the last 10 years.
Mammals	Least shrew	Cryptotis parva	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened

Category	Common Name	Scientific Name	Inclusion Rationale
			(2014). Populations have severely declined due to natural phenomena, genetic limitations, and intensive land use by humans.
Mammals	Little Brown Bat	Myotis lucifugus	Expert review (2014); Technical Advisory Committee for the T&E list revision recommended this species be added to the list as Threatened (2014) due to White-nose Syndrome.
Mammals	Moose	Alces americanus	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014)
Mammals	Northern Bat or Northern Myotis	Myotis septentrionalis	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to be elevated to Threatened from Special Concern (2014) due to White-nose Syndrome.
Mammals	Northern flying squirrel	Glaucomys sabrinus	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). There is concern that the range is constricting to the north and the species is declining.
Mammals	Prairie vole	Microtus ochrogaster	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Endangered (2014). Generally depend on relatively undisturbed grasslands. Michigan is edge of range for this species.
Mammals	Smoky shrew	Sorex fumeus	Expert review (2005); Technical Advisory Committee for the T&E list revision

Category	Common Name	Scientific Name	Inclusion Rationale
			recommended this species be listed as Special Concern instead of Threatened (2014). Secure population found on Sugar Island and the species is doing well in other parts of its range (2014).
Mammals	Tricolored Bat	Perimyotis subflavus	Expert review (2014); Technical Advisory Committee for the T&E list revision recommended this species be added to the list as Threatened (2014) due to White-nose Syndrome.
Mammals	Woodland vole	Microtus pinetorum	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as special concern (2014). High densities of predators including coyotes, raccoon, fox, opossum, and housecats pose a problem as does the use of poisons by humans.
Mussels	A fingernail clam	Pisidium simplex	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain Special Concern (2014). Three occurrences in MNFI database, the species is negatively affected by pollution and poor water quality and competes with zebra mussels (MNFI 2007).
Mussels	Black sandshell	Ligumia recta	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species be listed as Threatened instead of Endangered (2014). Found in more than five but less than 20 locations in Michigan (2014).
Mussels	Clubshell	Pleurobema clava	Pleurobema clava Expert

Category	Common Name	Scientific Name	Inclusion Rationale
			review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). Federally endangered (2014).
Mussels	Creek Heelsplitter	<i>Lasmigona compressa</i>	Expert review (2005); Technical Advisory Committee for the T&E revision recommends that this species be listed as Special Concern due to recent large declines (2014).
Mussels	Deertoe	<i>Truncilla truncata</i>	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain Special Concern (2014). Many live populations in large watersheds (2014). The invasion of zebra mussels is a current threat to the species (MNFI 2007).
Mussels	Eastern Elliptio	<i>Elliptio complanata</i>	Expert review (2005). Listed as Special Concern during Technical Advisory Committee review of T&E list due to recent decline (2014).
Mussels	Eastern pondmussel	<i>Ligumia nasuta</i>	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). Found alive at 5 sites that are all extremely infested with dreissenids (2014).
Mussels	Elktoe	<i>Alasmidonta marginata</i>	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Future impacts from zebra mussels are potentially severe (2014).
Mussels	Ellipse	<i>Venustaconcha ellipsiformis</i>	Expert review (2005); Technical Advisory Committee recommends that this species

Category	Common Name	Scientific Name	Inclusion Rationale
			remain listed as Special Concern (2014). Recent increase in watersheds but remains a low number of locations (2014).
Mussels	European pea clam	Sphaerium corneum	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain Special Concern (2014). No occurrences in MNFI database, more research needed (MNFI 2007).
Mussels	Fawnsfoot	Truncilla donaciformis	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species be elevated to Endangered from Threatened (2014). Known in less than five watersheds and population declines from historic data (2014).
Mussels	Flutedshell	Lasmigona costata	Technical Advisory Committee recommends that this species be listed as Special Concern due to declines in recent surveys(2014)
Mussels	Giant northern pea clam	Pisidium idahoense	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014) due to MNFI museum records (2014).
Mussels	Greater European pea clam	Pisidium amnicum	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Three occurrences in MNFI database, threatened by spread of zebra mussels (MNFI 2007).
Mussels	Hickorynut	Obovaria olivaria	Expert review (2005); Technical Advisory Committee

Category	Common Name	Scientific Name	Inclusion Rationale
			recommends that this species remain listed as Endangered (2014). Recently found in only 2 watersheds which is a decline (MNFI 2007).
Mussels	Kidney shell	<i>Ptychobranchnus fasciolaris</i>	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). The kidney shell experiences an especially high mortality rate in low dissolved oxygen conditions (Teztloff 2001). The species is also negatively affected by zebra mussels (MNFI 2007).
Mussels	Lake floater	<i>Pyganodon lacustris</i>	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Possibly underestimated due to recent focus on riverine populations (2014).
Mussels	Lilliput	<i>Toxolasma parvus</i>	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). Negatively affected by zebra mussel invasion as well as the presence of pollutants (MNFI 2007).
Mussels	Northern riffleshell	<i>Epioblasma torulosa rangiana</i>	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). Federally endangered (2014).
Mussels	Ornamanted peaclam	<i>Pisidium cruciatum</i>	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain Special Concern (2014). Four known occurrences documented in

Category	Common Name	Scientific Name	Inclusion Rationale
			MNFI database, vulnerable to heavy metals and chemical pollutants and threatened by zebra mussel invasion (MNFI 2007).
Mussels	Paper pondshell	Utterbackia imbecillis	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Although the species is found in many watersheds populations are declining and found in low numbers (2014).
Mussels	Pink heelsplitter	Potomilus alatus	Expert review (2005); Technical Advisory Committee for the T&E list revision recommends that this species be listed as Special Concern due to declines in recent surveys (2014)
Mussels	Purple lilliput	Toxolasma lividus	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). Ranked as critically imperiled in Michigan and globally imperiled; there are eight occurrences of the species documented in the MNFI database and control of zebra mussels is critical to preserving the species (MNFI 2007).
Mussels	Purple wartyback	Cyclonaias tuberculata	Expert review (2005); Technical Advisory Committee recommends that this species stay listed as Threatened (2014). Concern about dreissenids and size class changes (2014).
Mussels	Rainbow	Villosa iris	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Special

Category	Common Name	Scientific Name	Inclusion Rationale
			Concern (2014). Recent declines from historic levels (2014).
Mussels	Rayed bean	Villosa fabalis	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). Found in extremely low numbers in only 4 watersheds (2014).
Mussels	River fingernail clam	Sphaerium fabale	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). Records from more than 20 Michigan counties. HELP
Mussels	Round hickorynut	Obovaria subrotunda	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). Recently found in only 2 watersheds which is a decline (MNFI 2007).
Mussels	Round lake floater	Pyganodon subgibbosa	Expert review (2005); Technical Advisory Committee recommends that this species be downlisted as Special Concern (taxonomy needs to be confirmed) (2014).
Mussels	Round peaclam	Pisidium equilaterale	T&E technical advisory committee review 2009; Technical Advisory Committee recommends that this species remain listed as Special Concern (2014). No known occurrences in MNFI database, more surveys needed; compete with zebra mussels (MNFI 2007).
Mussels	Round pigtoe	Pleurobema sintoxia	Expert review (2005); Technical Advisory Committee recommends that this species remain as Special Concern (2014). Federally listed as

Category	Common Name	Scientific Name	Inclusion Rationale
			Special Concern (2014).
Mussels	Salamander mussel	<i>Simpsonaias ambigua</i>	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). Host possibly in decline (2014).
Mussels	Slippershell	<i>Alasmidonta viridis</i>	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Threatened (2014). Large number of occurrences documented but few records of live individuals (2014).
Mussels	Snuffbox	<i>Epioblasma triquetra</i>	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). Federally listed as endangered (2014).
Mussels	Threehorn wartyback	<i>Obliquaria reflexa</i>	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Endangered (2014). Recent decline in number of watersheds (MNF 2007).
Mussels	Wavyrayed lampmussel	<i>Lampsilis fasciola</i>	Expert review (2005); Technical Advisory Committee recommends that this species remain listed as Threatened (2014). Need to be concerned about dreissenids and size class changes.
Mussels	White catspaw	<i>Epioblasma obliquata perobliqua</i>	Expert review (2005); Technical Advisory Committee recommends that this species still be listed as Endangered (2014). Possibly extirpated, two historical areas have no recent evidence of occurrence (2014).
Reptiles	Blanding's turtle	<i>Emydoidea blandingii</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision

Category	Common Name	Scientific Name	Inclusion Rationale
			<p>recommended this species to remain listed as Special Concern (2014). Populations have declined more than 50% over three generations across the species' entire range and declines are expected to continue. Population abundance in Michigan is unknown, however population declines appear to be less severe than across the range.</p>
Reptiles	Blue racer	Coluber constrictor foxii	<p>Expert review (2005). The Technical Advisory Committee during the T&E list review recommended that this species remain a SGCN, but do not need additional protective status at this time. Surveys are still warranted (TAC 2014). Based on current records, distribution likely remains the same as the historical range, but current abundance is unknown and some populations appear to be declining.</p>
Reptiles	Butler's garter snake	Thamnophis butleri	<p>Expert review (2014); Technical Advisory Committee for the T&E list revision recommended this species to be added to the list as Special Concern (2014). Current abundance is unknown, but the species appears to be experiencing a population reduction across its range, with the greatest effect in southeast Michigan.</p>
Reptiles	Copperbelly water snake	Nerodia erythrogaster neglecta	<p>Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Endangered (2014). This species is currently listed as Federally</p>

Category	Common Name	Scientific Name	Inclusion Rationale
			Threatened. Records for this subspecies in the state are scarce and current distribution and abundance is unknown. In 2010, copperbelly water snake were documented in Hillsdale County. It is also know from six other counties but observations are before 1998.
Reptiles	Eastern box turtle	Terrapene carolina carolina	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to be elevated to Threatened from Special Concern (2014). Data clearly indicate that populations of this species are rapidly declining in the state. Population reductions likely exceed 30% over three generations across the species' entire range; Michigan populations have likely experienced declines greater than 50%.
Reptiles	Eastern fox snake	Pantherophis gloydi	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). Surveys are warranted. The species' entire historical range is restricted to coastal marshes and near-shore habitat along Lake Huron and western Lake Erie. Populations are uncommon or rare in many areas where they occurred historically, but the species can be locally common where abundant suitable habitat remains.
Reptiles	Eastern massasauga	Sistrurus catenatus catenatus	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special

Category	Common Name	Scientific Name	Inclusion Rationale
			Concern (2014). This is a Federal Candidate subspecies. It is listed as endangered in every other state within its range, but appears to be somewhat stable in southwest and northern portions of their range in Michigan. This species has likely declined by 30% over the last 30 years.
Reptiles	Eastern Musk Turtle	Sternotherus odoratus	Current abundance is unknown, and this small, inconspicuous species is probably underreported in surveys. Threats to musk turtles include loss of lake habitats due to alternations such as aquatic vegetation removal for recreational or aesthetic purposes and reduction in water quality. Due to lack of data and observed and potential declines, eastern musk turtle is recommended to be listed as a species of greatest conservation need. Targeted monitoring is recommended as this species requires high water quality and is an ideal species for monitoring water quality. (T&E Technical Advisory Committee 2014).
Reptiles	Gray rat snake	Pantherophis spiloides	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014) due to limited information regarding the current status and apparent limited area of occupancy.
Reptiles	Kirtland's Snake	Clonophis kirtlandii	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Endangered

Category	Common Name	Scientific Name	Inclusion Rationale
			(2014), due to its limited extent of occurrence and area of occupancy and lack of data.
Reptiles	Northern Ribbon Snake	<i>Thamnophis sauritus septentrionalis</i>	Current abundance is unknown, and there are a number of counties within the northern Lower Peninsula where records are absent. Threats to northern ribbon snake include loss of wetland habitats, alteration of habitat by invasive plants, and alteration of shoreline habitat for residential and recreational uses. Considering the lack of scientific knowledge and various threats, the T&E Technical Advisory Committee recommends that the species be listed as a species of greatest conservation need (2014).
Reptiles	Northern ringnecked snake	<i>Diadophis punctatus edwardsii</i>	Expert review (2005). The Technical Advisory Committee during the T&E list review recommended that this species remain a SGCN, but do not need additional protective status at this time. Surveys are still warranted. Within the Lower Peninsula, records are scarce and the most recent are concentrated in the NW counties. Distribution and abundance is not known for this species and this data gap should be addressed.
Reptiles	Queen snake	<i>Regina septemvittata</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Special Concern (2014). This species distribution and abundance is unknown, but based on anecdotal evidence it has

Category	Common Name	Scientific Name	Inclusion Rationale
			declined across much of its range in Michigan.
Reptiles	Six-lined racerunner	<i>Aspidoscelis sexlineata</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014). One small population, disjunct from the main range of the species, occurs in Tuscola County. Anecdotal reports for this species in southwest Michigan have not been confirmed.
Reptiles	Smooth Green Snake	<i>Liochlorophis vernalis</i>	Expert review (2005). Technical Advisory Committee for the T&E list revision recommended this species to be elevated to special concern (2014). Populations are known to be declining and believed to be locally extirpated from some parts of the state. It is believed that this species has undergone a 30% reduction in population size over the last 30 years and declines are expected to continue in the Lower Peninsula.
Reptiles	Spotted turtle	<i>Clemmys guttata</i>	Expert review (2005); Technical Advisory Committee for the T&E list revision recommended this species to remain listed as Threatened (2014) due to a relatively small area of occupancy and extent of occurrence. Current observations are not available for a number of counties where it historically occurred. Populations have declined more than 50% over three generations across the species' entire range.
Reptiles	Wood turtle	<i>Glyptemys insculpta</i>	Expert review (2005); Technical Advisory Committee

Category	Common Name	Scientific Name	Inclusion Rationale
			for the T&E list revision recommended this species be elevated to Threatened from Special Concern (2014) given their declining populations and multiple threats. In Michigan, wood turtles have experienced population reductions of more than 50% over three generations.

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